



Watson – 18 months later

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Eric LeVine

*Group Program Manager*

Office Quality & Satisfaction Services



## .net Agenda

- What is Watson
- What we can do with it
- How we get and analyze data
- Questions

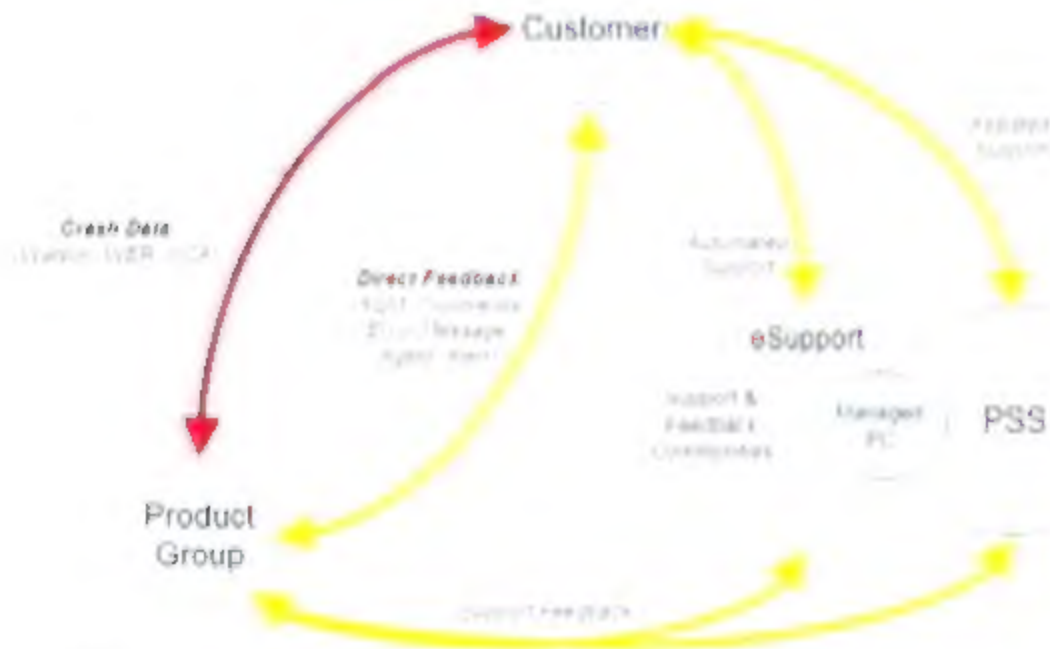


## .net Our Mission

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- Building an ever more sensitive nervous system to detect customer pain
- Delivering the pain to the right part of the organization to take effective action
- Closing the loop with customers
- Quality perception influenced by 3<sup>rd</sup> party components

# Product Feedback Ecosystem





## .net Crashes hurt!

- BillG memo on 'Trusted Computing'
- Industry considers PC inherently unstable
  - Walt Mossberg 9/30/99. "Dear Diary: I'm tired of the way Windows crashes and freezes"
- Our data concurs
  - MS Satisfaction survey – crashes are the #1 complaint (3 years running)
  - 'Fatal Events' continue as top PSS issues



## .net Crashes hurt!

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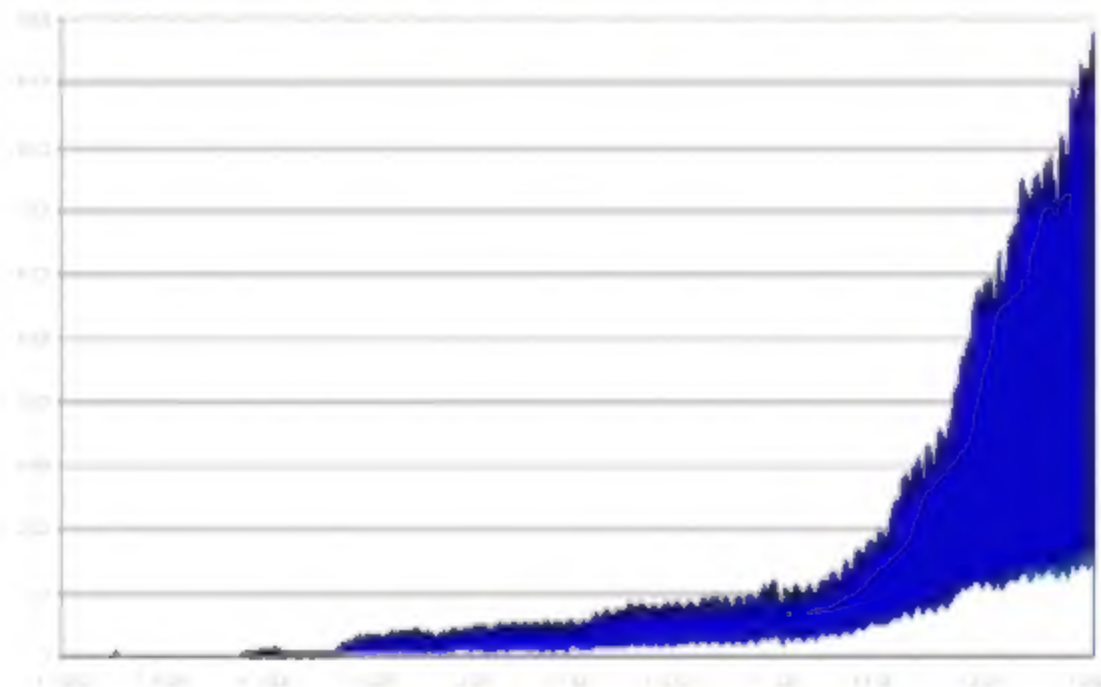
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# .net Watson today

- Crashes (1,000,000 reported per day; 95MM life to date)
  - Windows XP for ALL unhandled exceptions
    - ISV data sharing program underway
    - Shooting to fix 33% of all reported crashes in SP-1
  - Office XP—Fixed ~38% of all Office crashes in SP-1
  - MSN Explorer—The 1<sup>st</sup> Watson client from Beta1 of V1 all the way on
  - VS.net—Fixed 57% of all issues throughout beta cycle, 75% in beta1
  - Numerous consumer games
  - .NET Server apps
  - Many, many more... (everything we ship sometime soon?)
- Bluescreens on Windows XP (70,000 per day)
- Other Errors (simple & bucketed clients)
  - Setup failures (Office, MSN Explorer)
  - Unplanned shutdown events
  - AppCompat wizard
  - SQL & IIS reliability data

# Watson Server Traffic – Crashes







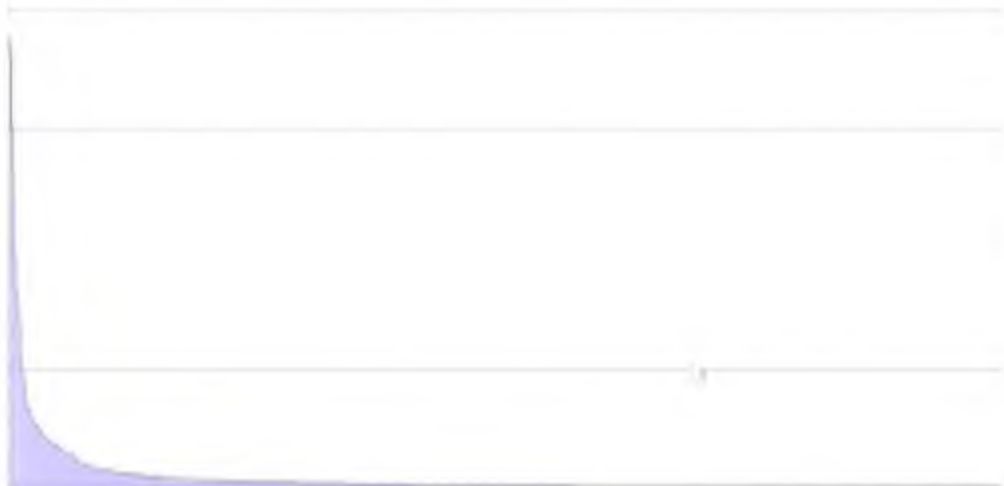
## .net Client/Server 'Bucketing'

- Our method of sampling
  - For crashes assumes no client access to symbols
- What You Get:
  - Ability to limit data collection (sampling)
  - Custom data collection
  - Per bucket hit counting
  - Per bucket user response
- Group failures by certain 'bucketing' parameters:
  - Application Name
  - Application Version
  - App Linker Timestamp\*
  - Module Name
  - Module Version
  - Module Linker Timestamp\*
  - Offset into module
  - Debug | Ship\*

\* New to DW 2.0



## .net Crash Curve



Source: [illegible]

Source: FrontPage RTM (16/02/2000) top 20% of curve

# .net Office XP SP-1

Outlook

FrontPage

Word

Excel

PowerPoint

Access

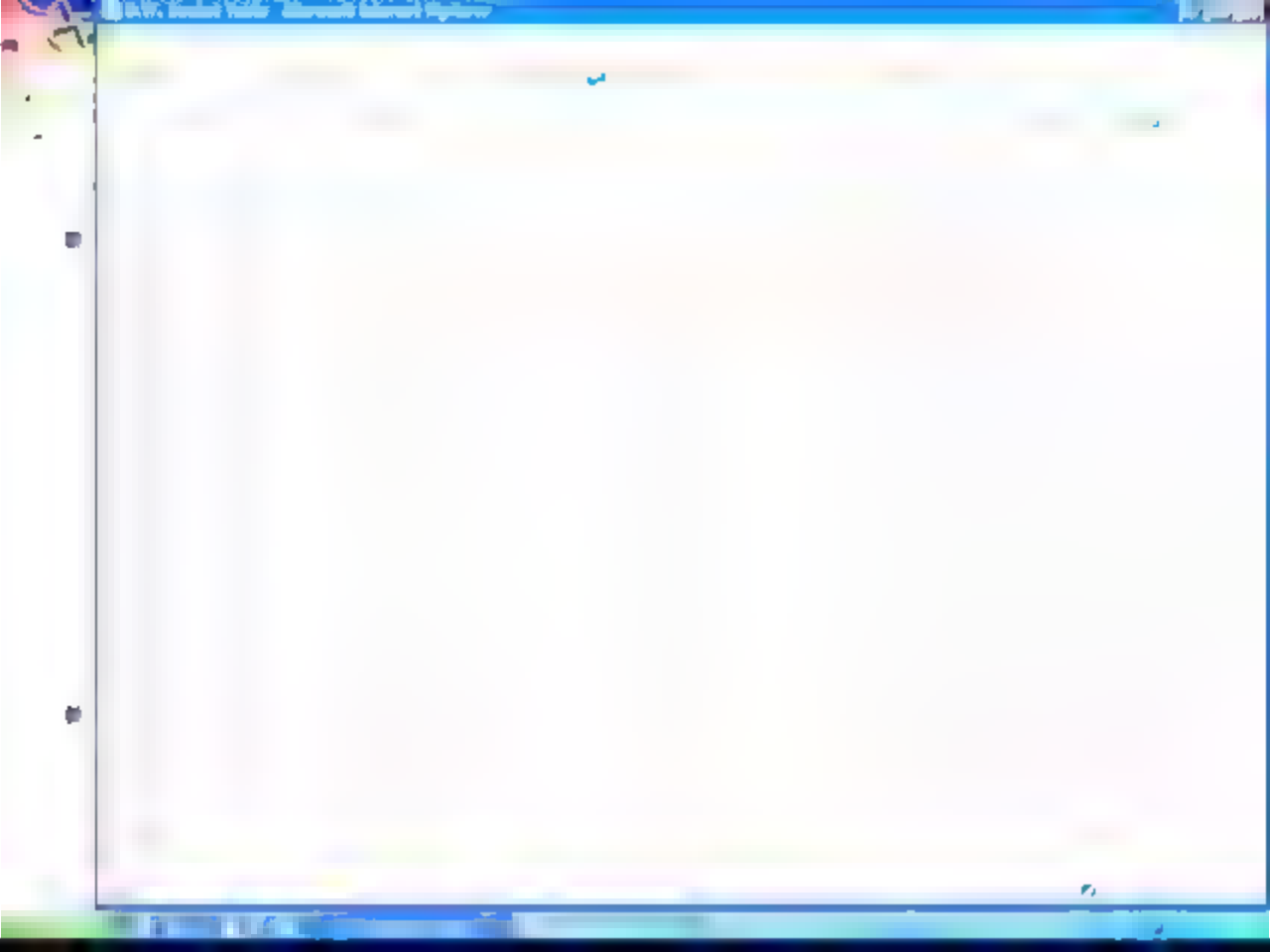
Publisher

## .net 'WatsonJobs'

- Using symbolic data
  - Symbol Servers allow Watson's backend process to find symbols and binaries.
  - We launch a debugger for each dump and feed the output into a massive database.
  - The client/server conversation is unaffected. This is done as an asynchronous debugging session.
- We use this information to figure out which buckets are "related"

## .net Using Symbolic Data

- A method for separating multiple bugs in a single bucket:
  - Every cap contains the stack of (on average) 20 functions before the crash occurred.
  - We declare certain functions – which we believe to be problem-free or uninteresting to be 'Immune'
  - Walk up the stack until we find the first non-immune function
  - This becomes the szSymbol aka first interesting function for the cap.
- A bucket can have multiple szSymbols









# Watson (LIVE) Bucket '5986560'

Home Settings Sign Out Configuration

10/10/2010 10:10:10 AM

Home Page

10/10/2010 10:10:10 AM

## Watson (LIVE) Bucket 5986569

CAB File 12-15-2001 7:23:55 cab

Files in Cab

OS Info

Description

Cab Attach

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### Index in C++

4296 J. Neurosci., September 24, 2008 • 28(39):4290–4296

Fig. 10. *Continued*

(a)  $49.5 \pm 1.0$

### Module List

C:\WINDOWS\SYSTEM32\DRIVERS\CLASS\CLASS.CMD

Files in Cab

File Info

File Properties

File Attributes

Module List

## .net Using Symbolic Data

- A method for separating multiple bugs in a single bucket:
  - Every cap contains the stack of (on average) 20 functions before the crash occurred.
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## Watson (LIVE) Bucket b, 1567

(All time) 1567 1961872100

Files in Lab

File Info

Exception

Call Stack

Module List



Watson (LIVE) Bucket '614567'

(Minimal Working Visual Illustration)

Only Notepad++ can edit

Notepad

Notepad

**Watson (LIVE) Bucket '614567'**

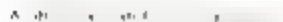
(Control Hub) (View Configuration)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Bucket Diagram

Bucket Diagram

# Directed Graphs



# Watson (LIVE) Bucket '014567'

(Manual Review Final Information)

Copy All Map Back Code

Help Page

014567



Watson (LIVE) Bucket '614567'

Abstracts | Meetings | News | Advertising

■ 4/4 Beat ■ 11/16 Beat ■ 4/8 Beat

1981, p. 103) If language is

10.1111/j.1365-3113.2011.04501.x







# .net Calltree Visualization

- (0) `Sequence::AssureValid` +
- (1) `HTree::Treeify` +
- (2) `HNode::Parent` +
- (3) `CRulesGatherer::SelectorMatchesTree` +
- (4) `CRulesGatherer::MatchRules` +
- (5) `CRulesGatherer::GatherRuleDirts` +
- (6) `CHTMLHandler::ProcessNodeForInput` +
- (2) `HNode::ParentStruct` +
- (3) `WPEV::OutdentRange` +
- (4) `CWPERangeCommander::DoFormatOutdent` +
- (5) `CWPEView::OnFormatOutdent` +
- (6) `CWPEView::DoHandleReturnKey` +
- (6) `AfxDispatchCmdMsg` +
- (6) `AfxDispatchCmdMsg` +

# Watson (LIVE) Bucket '014567'

Global Hub/Tag Configuration

Display: Map | List | Grid

Map (Open)

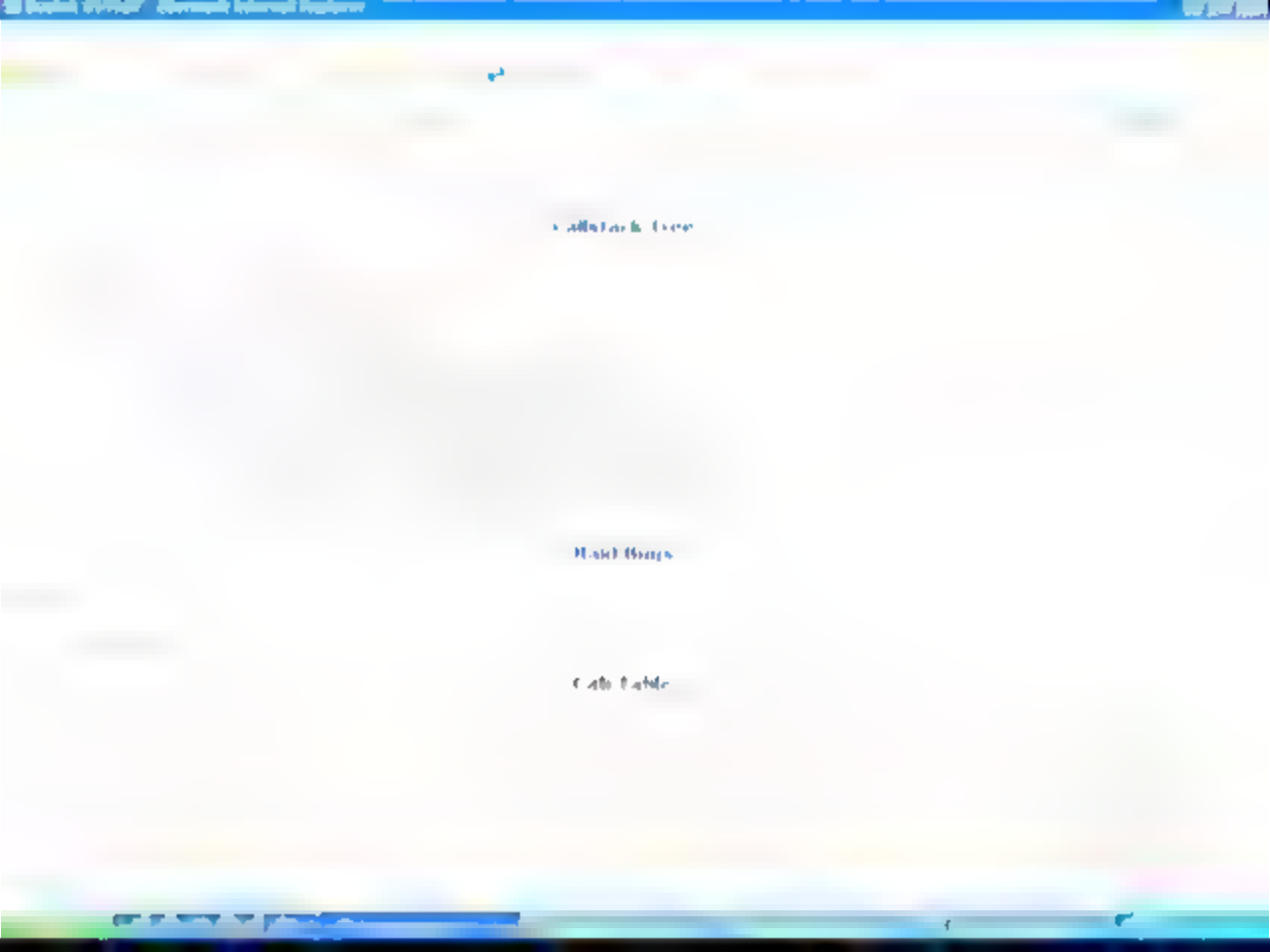
Map (Open)



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Callisto (Cee)

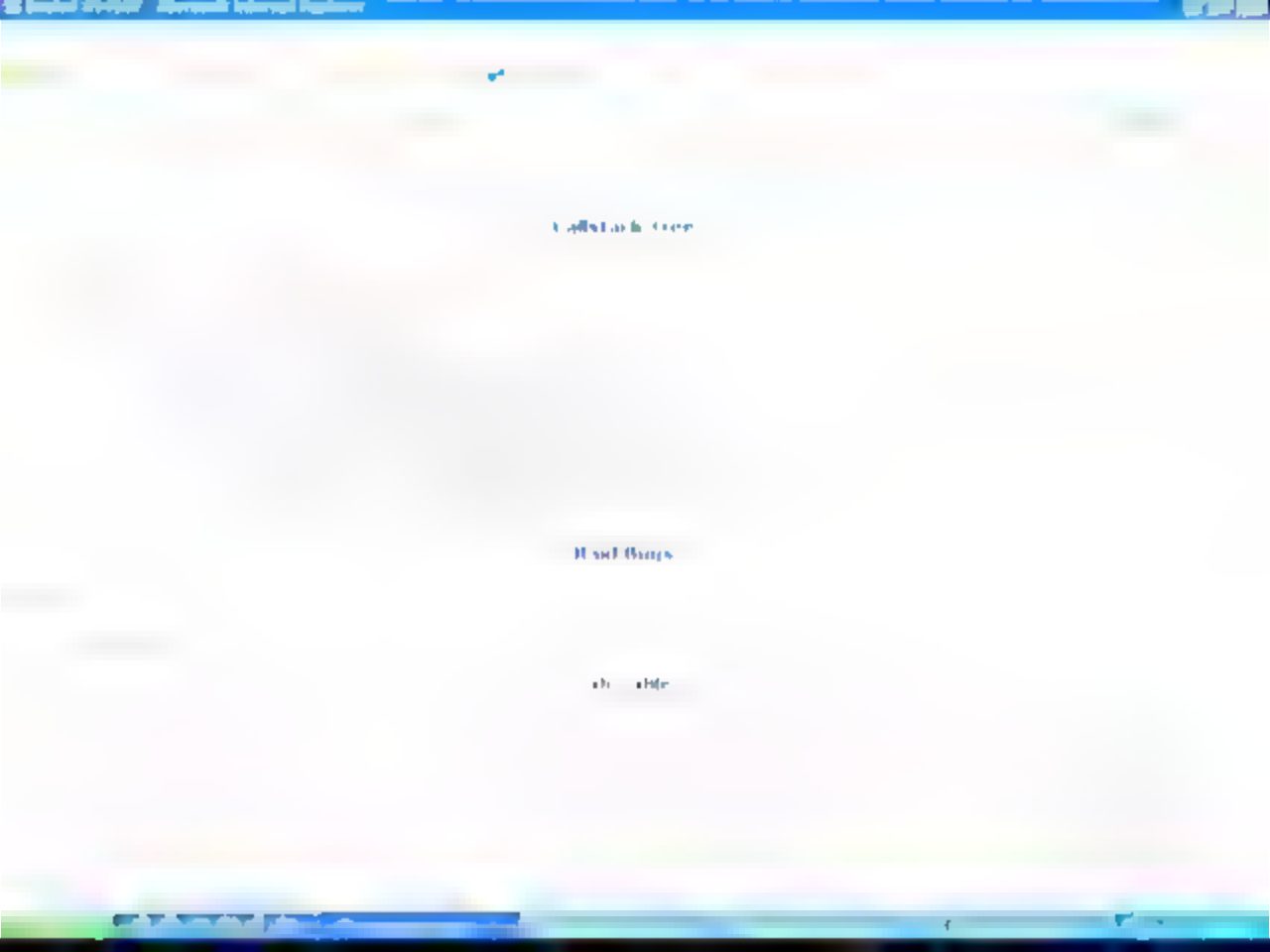
Planet Europa

Callisto (Cee)

collaborative

Handy Hints

Handy Hints



CallStack (top)

CallStack (bottom)

CallStack (middle)

CallStack (bottom)

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## Handy Hints





Callisto (Ceres)

Callisto (Ceres)

Callisto (Ceres)

### Activity 10.10.1: Network Diagram

Activity 10.10.1: Network Diagram

Activity 10.10.1: Network Diagram

Activity 10.10.1: Network Diagram

Activity 10.10.1: Network Diagram

Activity 10.10.1: Network Diagram

Activity 10.10.1: Network Diagram

# Input the Hidden Values

1.  $x = 10$ ,  $y = 20$

2.  $x = 10$ ,  $y = 20$

3.  $x = 10$ ,  $y = 20$

4.  $x = 10$ ,  $y = 20$

5.  $x = 10$ ,  $y = 20$ ,  $z = 30$

6.  $x = 10$ ,  $y = 20$ ,  $z = 30$

7.  $x = 10$ ,  $y = 20$

8.  $x = 10$ ,  $y = 20$ ,  $z = 30$

9.  $x = 10$ ,  $y = 20$ ,  $z = 30$ ,  $w = 40$

# .net Calltree Visualization

- (0) `Sequence.AssureValid + 0x00000000`
- (1) `HTree.Treeify + 0x00000000`
- (2) `HNode.Parent + 0x00000000`
- (3) `CRulesGatherer.SelectorMatchesTree + 0x00000000`
- (4) `CRulesGatherer.MatchRules + 0x00000000`
- (5) `CRulesGatherer.GatherRuleDirts + 0x00000000`
- (6) `CFHTMLHandler.ProcessNodeForInput + 0x00000000`
- (2) `HNode.ParentStruct + 0x00000000`
- (3) `WPEV.OutdentRange + 0x00000000`
- (4) `CWPERangeCommander.DoFormatOutdent + 0x00000000`
- (5) `CWPEVIEW.OnFormatOutdent + 0x00000000`
- (6) `CWPEVIEW.DoHandleReturnKey + 0x00000000`
- (6) `_AfxDispatchCmdMsg + 0x00000000`
- (6) `AfxDispatchCmdMsg + 0x00000000`

### Steps to Human Values

$\frac{1}{2} \quad \frac{1}{2} \quad 1$

11/11/2019 11:11

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

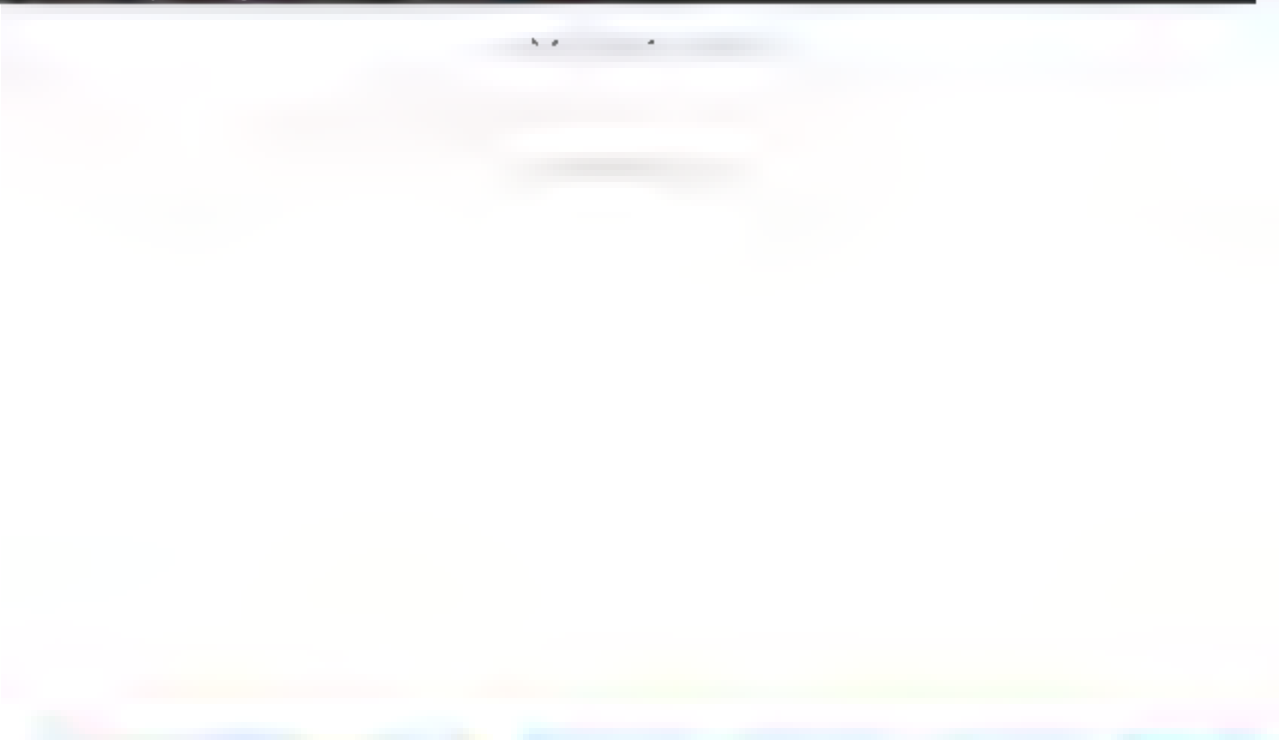
8. 7. 8. 9.

11.  $\frac{1}{2}$ 

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|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|

$$A_2 M \approx 10^5 \quad \text{P} \quad \theta \quad 20 \text{ (I)} \quad 100 \text{ (II)} \quad 10^6 \quad \text{P} \quad 10^6 \quad \text{P} \quad 10^6 \quad \text{P}$$

## Watson (LIVE) Bucket Update



Watson (LIVE) Bucket '614567'

(Normal Debug View Configuration)

15W 04:1 (Up: 100%) 100%

10.00 (100%)

20.00 (200%)

Watson (LIVE) Bucket '014567'

Mineral Mining Agent Information

10/10/2010 11:11:11 AM

10/10/2010

10/10/2010



Windows

Microsoft

At the top of the page, there is a navigation bar with the following links: Home, About, Contact, and a search bar. Below the navigation bar, there is a main content area with a heading "Welcome to the Microsoft Windows website" and a subheading "Get the latest Windows 10 updates and features".

Below the main content area, there is a section titled "Windows 10" with a subheading "Get the latest Windows 10 updates and features".

Below the "Windows 10" section, there is a section titled "Windows 10" with a subheading "Get the latest Windows 10 updates and features".

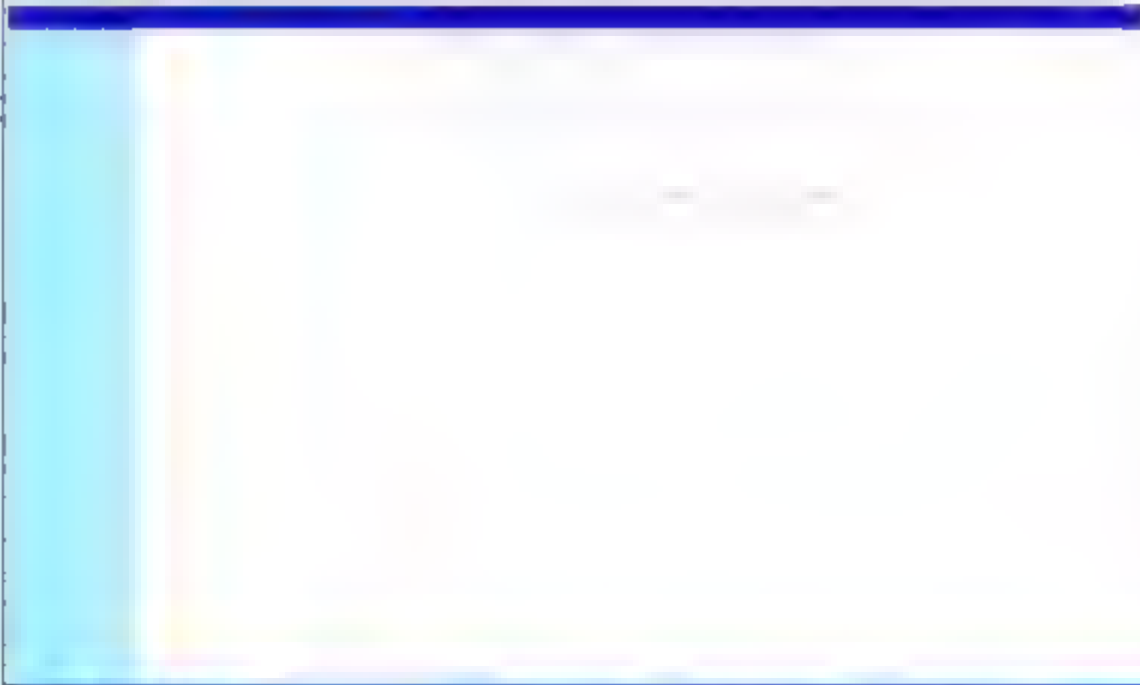
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Wat

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Windows



# Watson (LIVE) Bucket '614567'

(Manual Review Only) Identification

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Watson (LIVE) Bucket '614567'

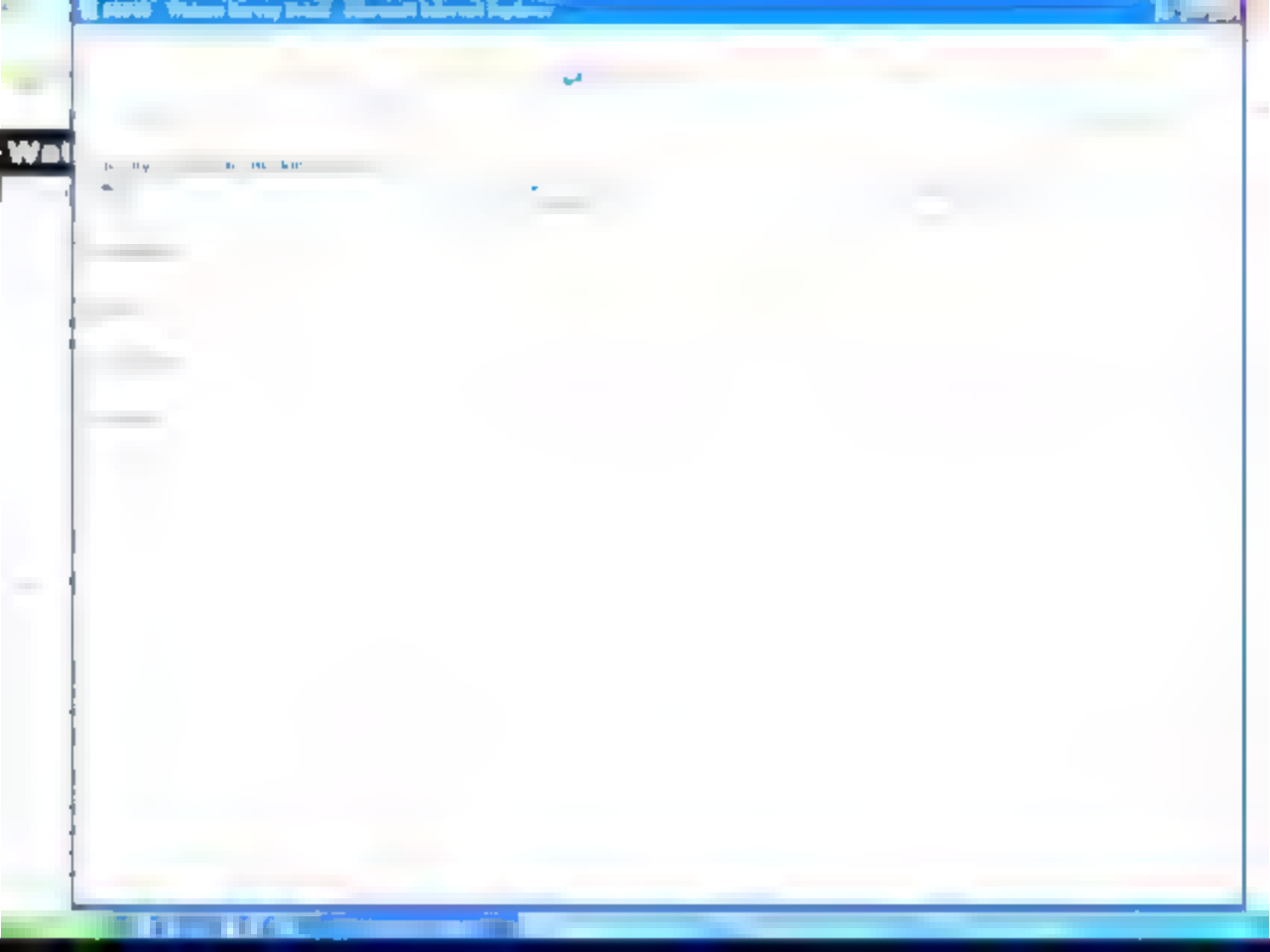
(Manual Editing View (Unauthenticated))

100% 100% 100% 100%

100% 100%

100% 100%

100% 100%





### Ignore If x has 2 values

$p = \frac{d - d_0}{d}$   
 $A = \frac{p}{1 - p}$   
 $d = 0.01 \times A$   
 $A = 0.01$

$A = \frac{p}{1 - p} = \frac{0.01}{1 - 0.01}$

$A = 0.0101$

$A = 0.01$

$A = 0.0101$

$A = 0.0101$

# Watson (LIVE) Bucket

(Manual Review Only - No Automation)

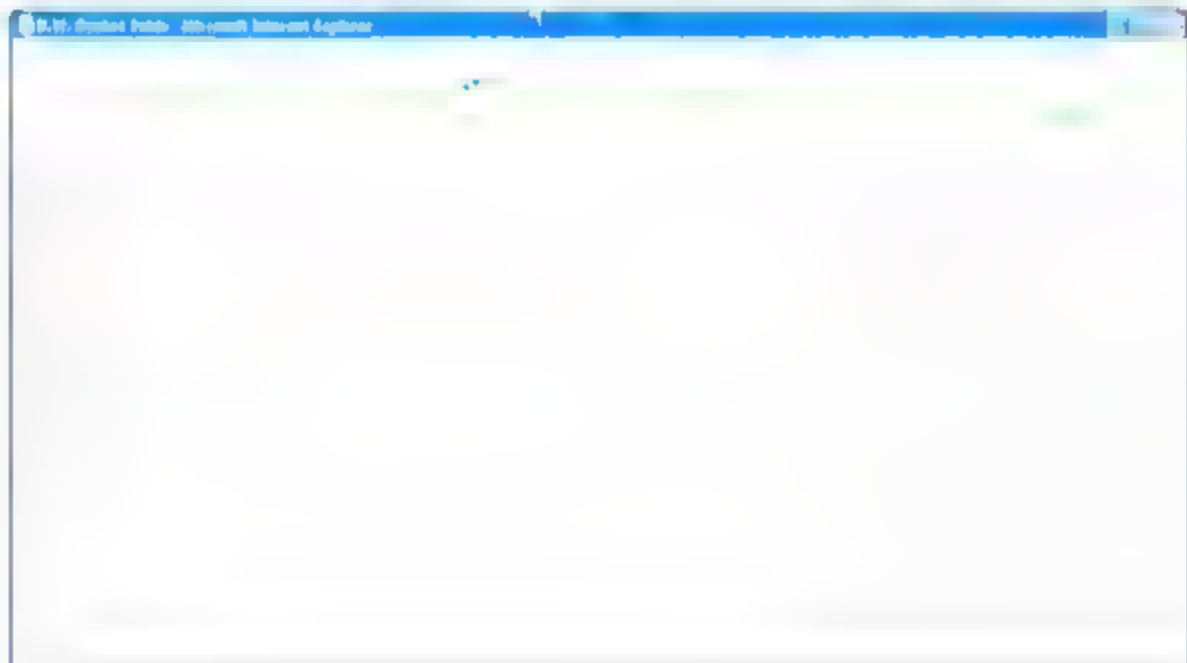
11/11/2011 11:11:11 AM

11/11/2011

11/11/2011

11/11/2011

## .net Same Bug, Many Buckets





## .net DW 2.0: 'Generic Errors'

- The sky's the limit for data that:
  - Can be categorized around cause and then 'bucketed'
- Examples:
  - Error Warning Alerts
  - 'Ship Asserts'
  - CD Burn errors
  - I/O Failures
  - Server Connectivity
  - Plug & Play device errors

10/10/2010 10:10:10 AM

10/10/2010

10/10/2010

10/10/2010

**WATSON**

Watson

Watson



.net

# Watson (Internal) Bucket@enact '50'

[Status] [Status Type] [Configuration]

Watson (Internal) Bucket@enact '50'

Watson

Watson (Internal) Bucket@enact '50'

Watson (Internal) Bucket@enact '50'

Watson (Internal) Bucket@enact '50'

Watson (Internal) Bucket@enact '50'

Watson (Internal) Bucket@enact '50'

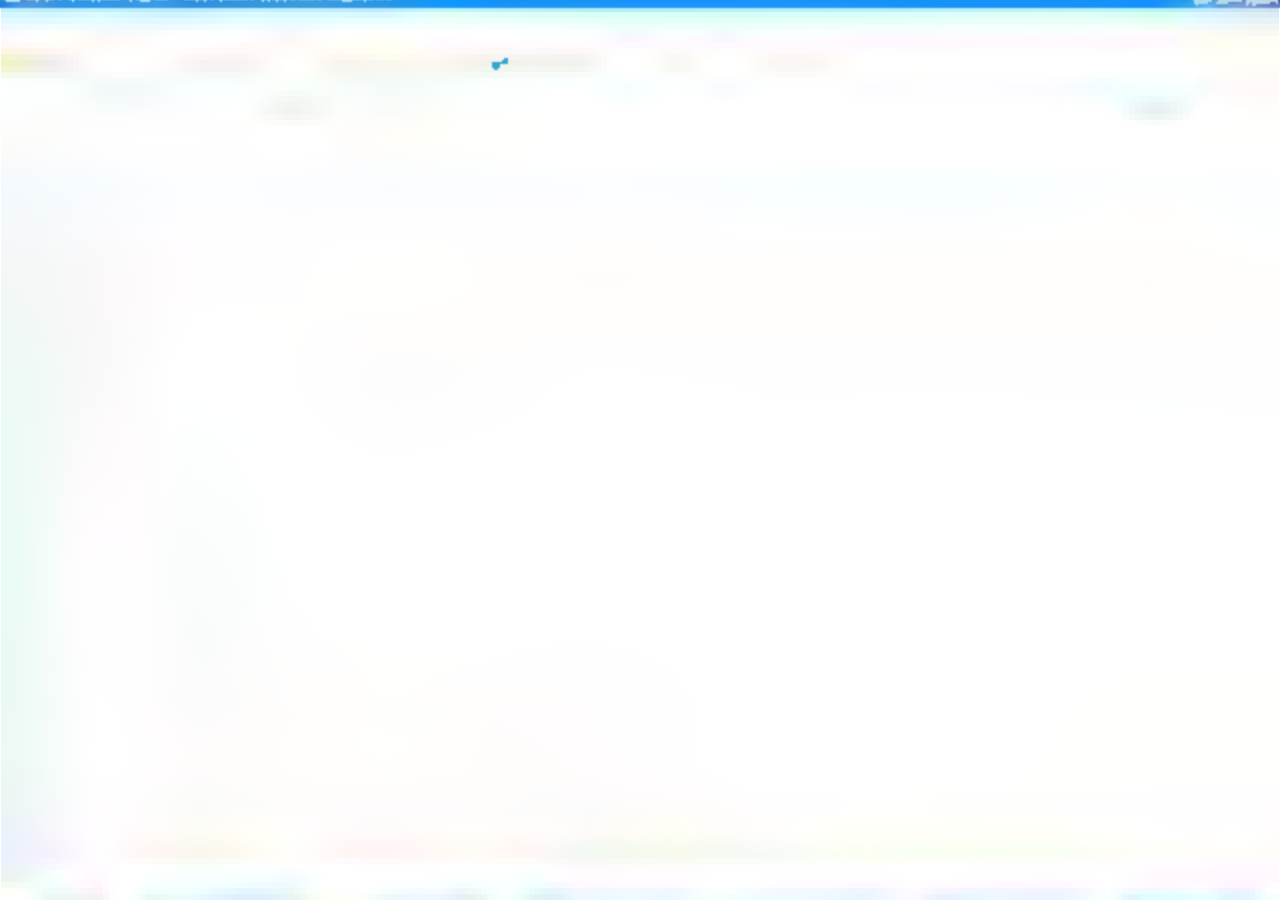
Watson (Internal) Bucket@enact '50'

Watson (Internal) Bucket@enact '50'

Watson (Internal) Bucket@enact '50'

Watson





## .net DW 2.0: 'Generic Errors'

- The sky's the limit for data that:
  - Can be categorized around cause and then 'bucketed'
- Examples:
  - Error Warning Alerts
  - 'Snap Asserts'
  - CD Burn errors
  - I/O Failures
  - Server Connectivity
  - Plug & Play device errors



## .net User Response

- Users can be directed to any Microsoft URL by clicking on the 'More information' hyperlink on Watson's Thank You dialog.
- DW 2.0 can just autolaunch the web page

### Error Reporting

- When an error occurs, the user is presented with a dialog box that contains the error message and a link to the Microsoft support website.
- If the user is not satisfied with the error message, they can click on the link to the Microsoft support website.

Microsoft

100%

## .net Content of Responses

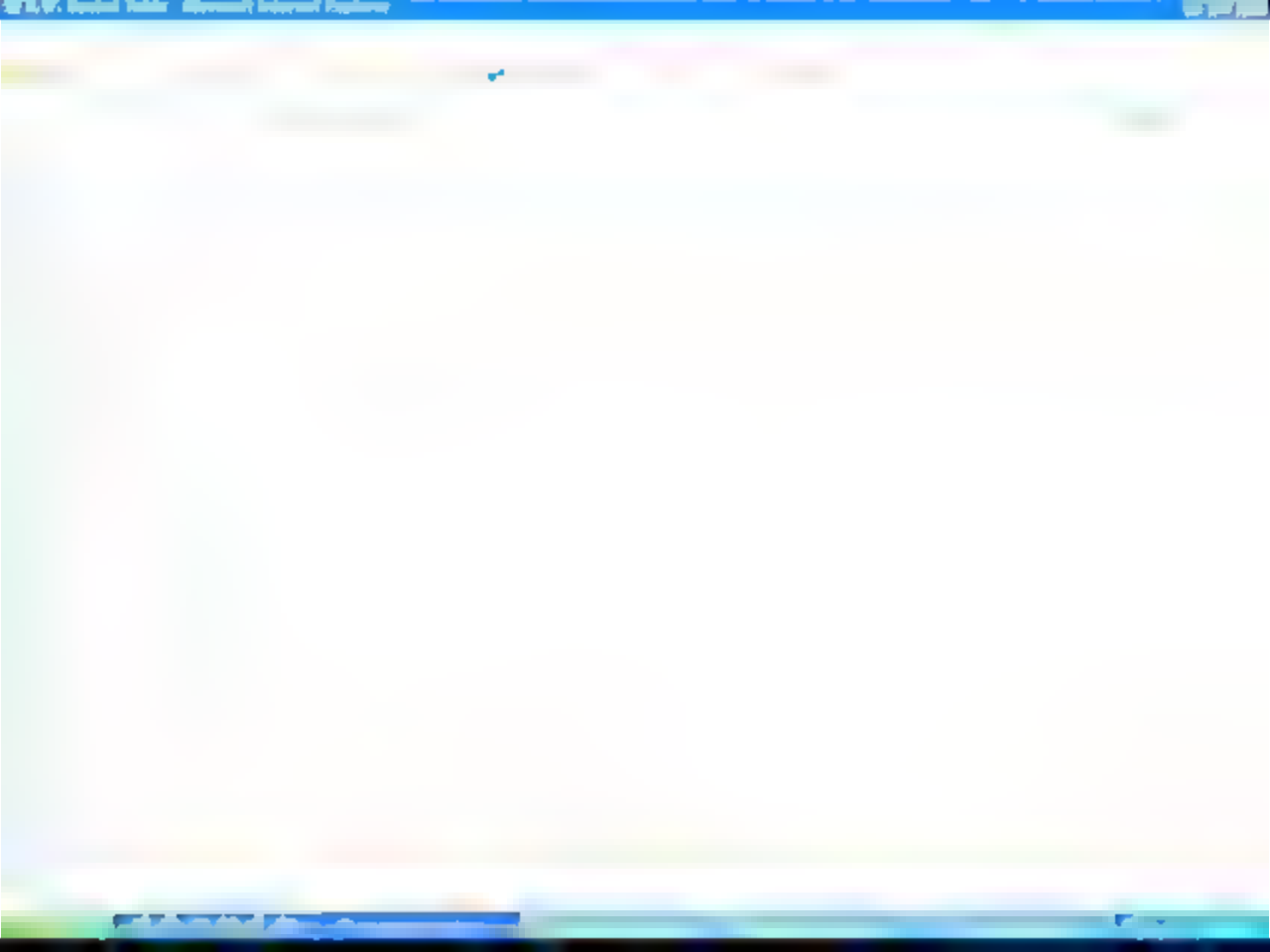
- We can push back:
  - Patches – To fix specific problems.
  - Updates SP's – Direct users with out-of-date EXE's or DLL's to an update site
  - Workarounds – Knowledgebase Articles.
- Surveys – If we need more information. These pages ask for repro steps associated with a bucket
- Even a plea to please call us collect
- Other advanced data collection mechanisms like BugTrapper?

## .net A Few of the Lessons

- Many operational lessons
  - Scale assumptions working very well – but the service growth is mind boggling!
  - SQL, SQL, and more SQL
- Cultural lessons
  - Many groups get excellent initial ROI
    - The data is not too easy to see, but it is very useful
  - We can still do better at developer engagement
    - Tools automation development
  - Not yet wired into PSS
  - Need deeper instrumentation for state

## .net More Information

- Email [mailto:dw@core](mailto:mailto:dw@core)
- Join [mailto:dw@friend](mailto:mailto:dw@friend)
- Visit our site: <http://www.statson>





# WATSON

Home

Live Hit

.net

## Company Info

- 1. About Watson
- 2. Watson's Mission
- 3. Watson's History
- 4. Watson's Future

## Product Info

- 1. Watson's Products
- 2. Watson's Services
- 3. Watson's Partners
- 4. Watson's Customers

## Watson's Future

- 1. Watson's Vision
- 2. Watson's Strategy
- 3. Watson's Goals
- 4. Watson's Challenges
- 5. Watson's Opportunities



Home > About Watson > Watson's Mission

Watson's Mission is to provide the best possible service to our customers.

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|    |    |    |
|----|----|----|
| 1  | 2  | 3  |
| 4  | 5  | 6  |
| 7  | 8  | 9  |
| 10 | 11 | 12 |



## Office Watson

## Computers

.net

10/11/2000 10:17 AM

http://www...

http://www...

http://www...

http://www...

http://www...

| Application  | RTM Version  | Total number of reported crashes (no hangs) | Percent of Office crashes | Number of crashes fixed | Percent of crashes fixed | Number of crashes fixed | Percent of crashes fixed |
|--------------|--------------|---|---------------------------|-------------------------|--------------------------|-------------------------|--------------------------|
| Outlook      | 5.5.2.2718.0 | 2487  | 11.2%                     | 122                     | 4.9%                     | 122                     | 4.9%                     |
| Word         | 5.5.2.2718.0 | 2278  | 10.3%                     | 103                     | 4.5%                     | 103                     | 4.5%                     |
| Total        | 5.5.2.2718.0 | 7348  | 33.5%                     | 225                     | 3.0%                     | 225                     | 3.0%                     |
| PowerPoint   | 5.5.2.2718.0 | 4100  | 18.7%                     | 180                     | 4.4%                     | 180                     | 4.4%                     |
| Access       | 5.5.2.2718.0 | 4000  | 18.4%                     | 170                     | 4.2%                     | 170                     | 4.2%                     |
| FrontPage    | 5.5.2.2718.0 | 2400  | 11.0%                     | 110                     | 4.6%                     | 110                     | 4.6%                     |
| Publisher    | 5.5.2.2718.0 | 1100  | 5.0%                      | 50                      | 4.5%                     | 50                      | 4.5%                     |
| Total Office |              | 26110                                       |                           | 812                     | 3.1%                     | 812                     | 3.1%                     |

[Office Watson Home](#)[Send feedback to the Watson team](#)[Contact Watson](#)[Privacy Policy](#)

10/11/2000



